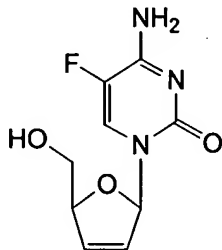


Amendment to the Claims

This listing of the claims will replace all prior versions, and listing, of claims in the application.

Listing of Claims:

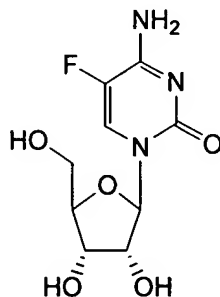
1. (Currently Amended) A process for the preparation of a compound of Formula (IV):



(IV)

comprising:

- (1) contacting a compound of Formula (I):



(I)

with an acyl halide of Formula $Q-C(=O)X$, wherein:

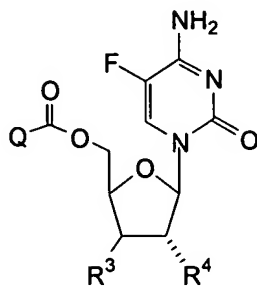
Q is 2-($R^1CH_2CO_2$)phenyl-, R^1CH_2 -, or $R^1CH_2C(=O)OC(R^2)_2$ -;

X is Cl, Br, or I;

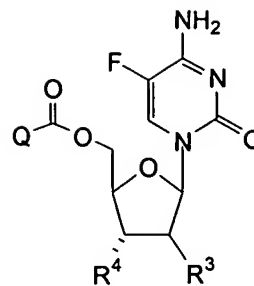
R^1 is H or C_1 - C_6 alkyl;

R^2 , at each occurrence, is independently selected from methyl, ethyl, and propyl;

in a suitable polar aprotic solvent to form a compound of Formula (II), a compound of Formula (II*), or a mixture of compounds of Formula (II) and (II*):



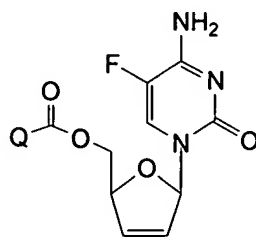
(II)



(II*)

wherein R^3 is X; and R^4 is $R^1CH_2C(=O)O^-$;

(2) contacting the compound of Formula (II), the compound of Formula (II*), or the mixture of compounds of Formula (II) and (II*); with a suitable reducing agent in a suitable polar solvent, ~~optionally in the presence~~ in the absence of a suitable an acid catalyst, to form a compound of Formula (III):



(III); and

(3) contacting the compound of Formula (III) with a suitable base to form the compound of Formula (IV).

2. (Currently Amended) The process of Claim 1 for the preparation of a compound of Formula (IV), wherein:

in step (1) the acyl halide of Formula $Q-C(=O)X$ comprises:

2-acetoxy-2-methyl-propionyl bromide, 2-(acetoxy)-2-methyl-butanoyl bromide, 2-(acetoxy)-2-ethyl-butanoyl bromide, or 2-(acetoxy)-2-methyl-pentanoyl bromide;

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether,

dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;

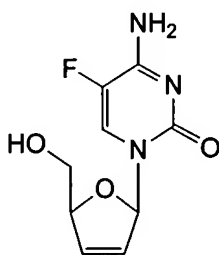
in step (2), the suitable reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;

~~in step (2), the suitable acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~

in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether; and

in step (3) the suitable base is selected from the group consisting of: sodium hydroxide, lithium hydroxide, potassium carbonate, sodium carbonate, sodium methoxide, sodium ethoxide, C₃-C₆ alkyl primary amine, ammonium hydroxide, and ammonium C₁-C₆ alkoxide.

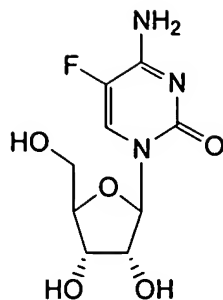
3. (Currently Amended) The process according to Claim 1, for the preparation of a compound of Formula (IV):



(IV)

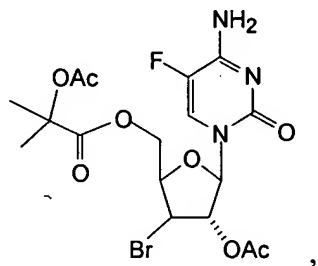
comprising:

- (1) contacting a compound of Formula (I):

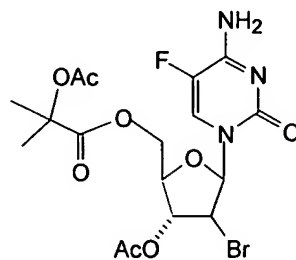


(I)

with 2-acetoxy-2-methyl-propionyl bromide in a suitable polar aprotic solvent to form a compound of Formula (II-a), a compound of Formula (II*-a), or a mixture of compounds of Formula (II-a) and (II*-a):

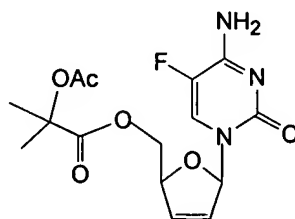


(II-a)



(II*-a)

(2) contacting the compound of Formula (II-a), the compound of Formula (II*-a), or the mixture of compounds of Formula (II-a) and (II*-a); with a suitable reducing agent in a suitable polar solvent, ~~optionally in the presence~~ in the absence of a suitable ~~an~~ acid catalyst, to form a compound of Formula (III-a):



(III-a); and

(3) contacting the compound of Formula (III-a) with a suitable base to form the compound of Formula (IV).

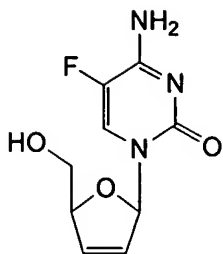
4. (Currently Amended) The process of Claim 3 for the preparation of a compound of

Formula (IV), wherein:

- in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;
- in step (2), the suitable reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;
- ~~in step (2), the suitable acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~
- in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether; and
- in step (3) the suitable base is selected from the group consisting of: sodium hydroxide, lithium hydroxide, potassium carbonate, sodium carbonate, sodium methoxide, sodium ethoxide, C₃-C₆ alkyl primary amine, ammonium hydroxide, and ammonium C₁-C₆ alkoxide.

5. (Currently Amended) The process of Claim 4 for the preparation of a compound of Formula (IV), wherein:
 - in step (1), the suitable polar aprotic solvent comprises a combination of acetonitrile and ethyl acetate;
 - in step (2), the suitable reducing agent is Zn-Cu couple;
 - ~~in step (2), the suitable acid catalyst, when present, is acetic acid;~~
 - in step (2), the suitable polar solvent comprises a combination of methanol and ethyl acetate; and
 - in step (3) the suitable base is sodium methoxide.
6. (Currently Amended) The process according to Claim 5, for the preparation of a

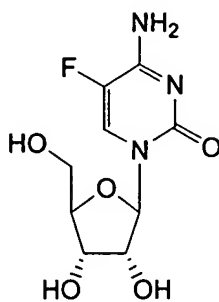
compound of Formula (IV):



(IV)

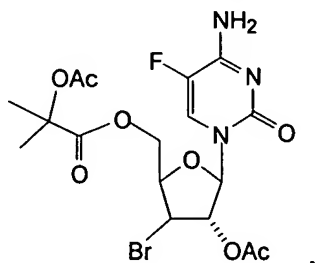
comprising:

(1) contacting a compound of Formula (I):

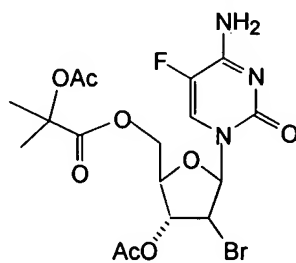


(I)

with 2-acetoxy-2-methyl-propionyl bromide in a suitable polar aprotic solvent comprising a combination of acetonitrile and ethyl acetate, wherein the ratio of acetonitrile to ethyl acetate is 1:4; to form a compound of Formula (II-a), a compound of Formula (II*-a), or a mixture of compounds of Formula (II-a) and (II*-a):

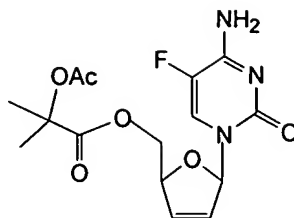


(II-a)



(II*-a)

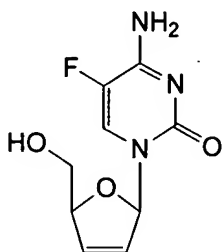
(2) contacting the compound of Formula (II-a), the compound of Formula (II*-a), or the mixture of compounds of Formula (II-a) and (II*-a); with Zn-Cu couple in a suitable polar solvent comprising a combination of methanol and ethyl acetate, wherein the ratio of methanol to ethyl acetate is in the range of 1:2 to 1:4; ~~optionally in the presence of acetic acid~~, to form a compound of Formula (III-a):



(III-a); and

(3) contacting the compound of Formula (III-a) with sodium methoxide to form the compound of Formula (IV).

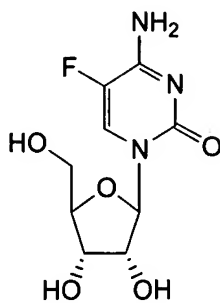
7. (Currently Amended) The process of Claim 1 for the preparation of a compound of Formula (IV):



(IV)

comprising:

- (1) contacting a compound of Formula (I):



(I)

with an acyl halide of Formula $Q-C(=O)X$, wherein:

Q is $R^1CH_2C(=O)OC(R^2)_2$;

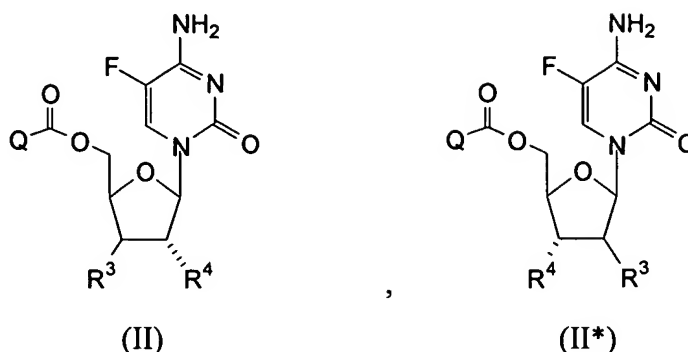
X is Cl, Br, or I;

R^1 is H, CH_3 , CH_2CH_3 , or $CH_2CH_2CH_3$;

R^2 , at each occurrence, is independently selected from methyl, ethyl, and propyl;

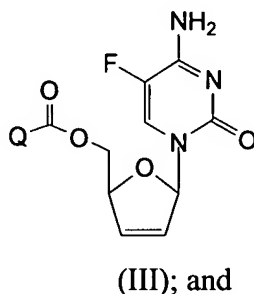
in a suitable polar aprotic solvent to form a compound of Formula (II) or a compound of

Formula (II*):



wherein R^3 is X; and R^4 is $R^1CH_2C(=O)O^-$;

(2) contacting the compound of Formula (II) or the compound of Formula (II*) with a suitable reducing agent in a suitable polar solvent, ~~optionally in the presence in the~~
absence of a suitable an acid catalyst, to form a compound of Formula (III):



(3) contacting the compound of Formula (III) with a suitable base to form the compound of Formula (IV).

8. (Currently Amended) The process of Claim 7 for the preparation of a compound of Formula (IV), wherein:

in step (1) the acyl halide of Formula $Q-C(=O)X$ comprises:

2-acetoxy-2-methyl-propionyl bromide, 2-(acetoxy)-2-methyl-butanoyl bromide, 2-(acetoxy)-2-ethyl-butanoyl bromide, or 2-(acetoxy)-2-methyl-pentanoyl bromide;

in step (1), the suitable polar aprotic solvent comprises

one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether,

dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;

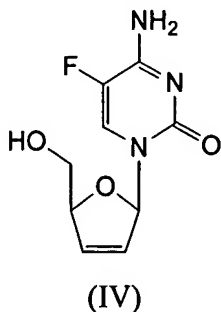
in step (2), the suitable reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;

~~in step (2), the suitable acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~

in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether; and

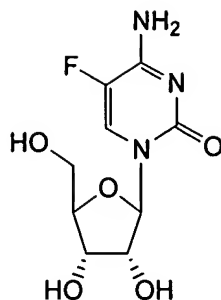
in step (3) the suitable base is selected from the group consisting of: sodium hydroxide, lithium hydroxide, potassium carbonate, sodium carbonate, sodium methoxide, sodium ethoxide, C₃-C₆ alkyl primary amine, ammonium hydroxide, and ammonium C₁-C₆ alkoxide.

9. (Currently Amended) The process according to Claim 7, for the preparation of a compound of Formula (IV):



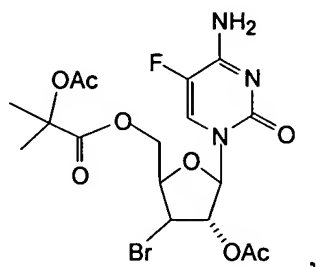
comprising:

- (1) contacting a compound of Formula (I):

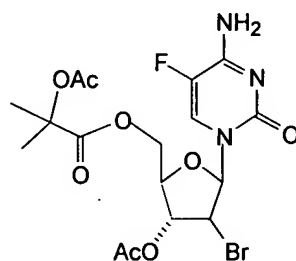


(I)

with 2-acetoxy-2-methyl-propionyl bromide in a suitable polar aprotic solvent to form a compound of Formula (II-a) or a compound of Formula (II*-a):

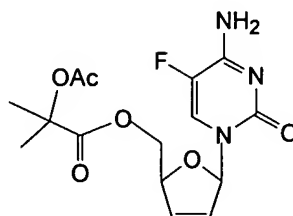


(II-a)



(II*-a)

(2) contacting the compound of Formula (II-a) or the compound of Formula (II*-a) with a suitable reducing agent in a suitable polar solvent, ~~optionally in the presence in the~~ absence of a suitable an acid catalyst, to form a compound of Formula (III-a):



(III-a); and

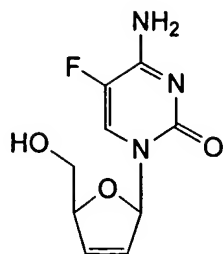
(3) contacting the compound of Formula (III-a) with a suitable base to form the compound of Formula (IV).

10. (Currently Amended) The process of Claim 9 for the preparation of a compound of Formula (IV), wherein:

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group

consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;
in step (2), the suitable reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;
~~in step (2), the suitable acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~
in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether; and
in step (3) the suitable base is selected from the group consisting of: sodium hydroxide, lithium hydroxide, potassium carbonate, sodium carbonate, sodium methoxide, sodium ethoxide, C₃-C₆ alkyl primary amine, ammonium hydroxide, and ammonium C₁-C₆ alkoxide.

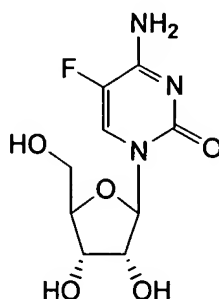
11. (Currently Amended) The process of Claim 10 for the preparation of a compound of Formula (IV), wherein:
in step (1), the suitable polar aprotic solvent comprises a combination of acetonitrile and ethyl acetate;
in step (2), the suitable reducing agent is Zn-Cu couple;
~~in step (2), the suitable acid catalyst, when present, is acetic acid;~~
in step (2), the suitable polar solvent comprises a combination of methanol and ethyl acetate; and
in step (3) the suitable base is sodium methoxide.
12. (Currently Amended) process according to Claim 11, for the preparation of a compound of Formula (IV):



(IV)

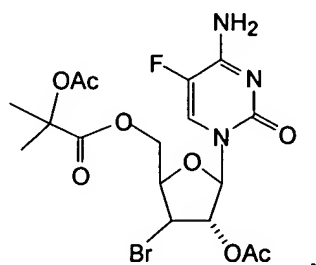
comprising:

(1) contacting a compound of Formula (I):

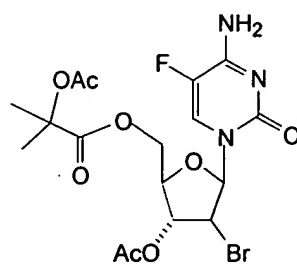


(I)

with 2-acetoxy-2-methyl-propionyl bromide in a suitable polar aprotic solvent comprising a combination of acetonitrile and ethyl acetate, wherein the ratio of acetonitrile to ethyl acetate is 1:4; to form a compound of Formula (II-a) or a compound of Formula (II*-a):

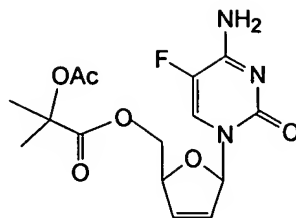


(II-a)



(II*-a)

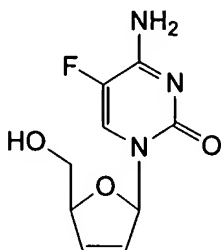
(2) contacting the compound of Formula (II-a) or the compound of Formula (II*-a); with Zn-Cu couple in a suitable polar solvent comprising a combination of methanol and ethyl acetate, wherein the ratio of methanol to ethyl acetate is in the range of 1:2 to 1:4; ~~optionally in the presence of acetic acid~~, to form a compound of Formula (III-a):



(III-a); and

(3) contacting the compound of Formula (III-a) with sodium methoxide to form the compound of Formula (IV).

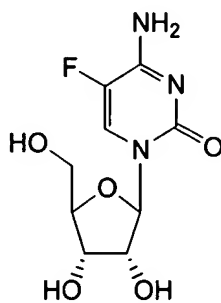
13. (Currently Amended) The process of Claim 1 for the preparation of a compound of Formula (IV):



(IV)

comprising:

- (1) contacting a compound of Formula (I):



(I)

with an acyl halide of Formula $Q-C(=O)X$, wherein:

Q is $R^1CH_2C(=O)OC(R^2)_2$;

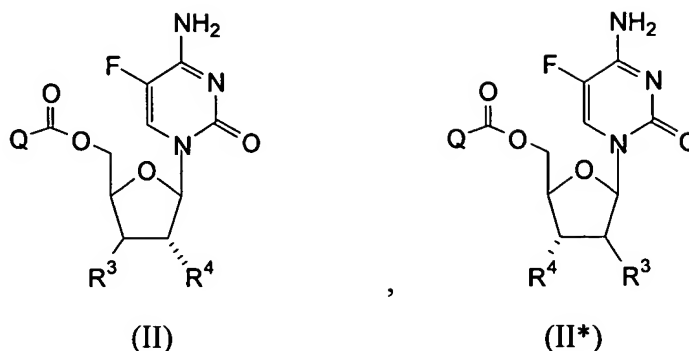
X is Cl, Br, or I;

R^1 is H, CH₃, CH₂CH₃, or CH₂CH₂CH₃;

R^2 , at each occurrence, is independently selected from methyl, ethyl, and propyl;

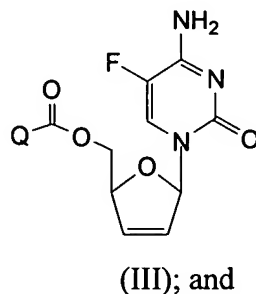
in a suitable polar aprotic solvent to form a mixture of compounds of Formula (II) and

(II*):



wherein R³ is X; and R⁴ is R¹CH₂C(=O)O-;

(2) contacting the mixture of compounds of Formula (II) and (II*) with a suitable reducing agent in a suitable polar solvent, ~~optionally in the presence~~ in the absence of a ~~suitable~~ an acid catalyst, to form a compound of Formula (III):



(3) contacting the compound of Formula (III) with a suitable base to form the compound of Formula (IV).

14. (Currently Amended) The process of Claim 13 for the preparation of a compound of Formula (IV), wherein:

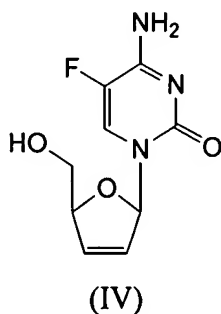
in step (1) the acyl halide of Formula Q-C(=O)X comprises:

2-acetoxy-2-methyl-propionyl bromide, 2-(acetoxy)-2-methyl-butanoyl bromide, 2-(acetoxy)-2-ethyl-butanoyl bromide, or 2-(acetoxy)-2-methyl-pentanoyl bromide;

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide,

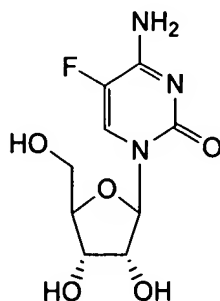
dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;
in step (2), the suitable reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;
~~in step (2), the suitable acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~
in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether; and
in step (3) the suitable base is selected from the group consisting of: sodium hydroxide, lithium hydroxide, potassium carbonate, sodium carbonate, sodium methoxide, sodium ethoxide, C₃-C₆ alkyl primary amine, ammonium hydroxide, and ammonium C₁-C₆ alkoxide.

15. (Currently Amended) The process according to Claim 13, for the preparation of a compound of Formula (IV):



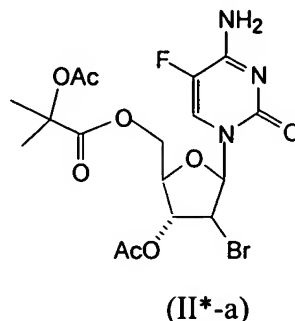
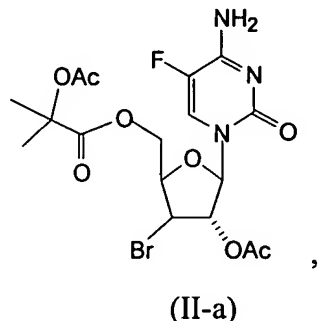
comprising:

- (1) contacting a compound of Formula (I):

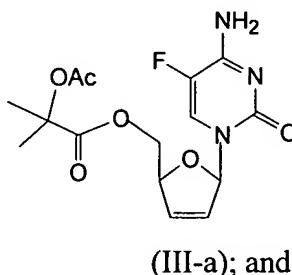


(I)

with 2-acetoxy-2-methyl-propionyl bromide in a suitable polar aprotic solvent to form a mixture of compounds of Formula (II-a) and (II*-a):



(2) contacting the mixture of compounds of Formula (II-a) and (II*-a) with a suitable reducing agent in a suitable polar solvent, ~~optionally in the presence~~ in the absence of a suitable an acid catalyst, to form a compound of Formula (III-a):



(3) contacting the compound of Formula (III-a) with a suitable base to form the compound of Formula (IV).

16. (Currently Amended) The process of Claim 15 for the preparation of a compound of Formula (IV), wherein:

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;

in step (2), the suitable reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;

~~in step (2), the suitable acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~

in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether; and

in step (3) the suitable base is selected from the group consisting of: sodium hydroxide, lithium hydroxide, potassium carbonate, sodium carbonate, sodium methoxide, sodium ethoxide, C₃-C₆ alkyl primary amine, ammonium hydroxide, and ammonium C₁-C₆ alkoxide.

17. (Currently Amended) The process of Claim 16 for the preparation of a compound of Formula (IV), wherein:

in step (1), the suitable polar aprotic solvent comprises a combination of acetonitrile and ethyl acetate;

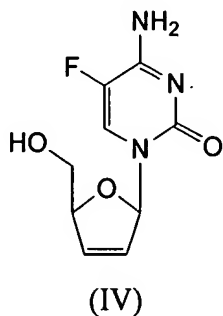
in step (2), the suitable reducing agent is Zn-Cu couple;

~~in step (2), the suitable acid catalyst, when present, is acetic acid;~~

in step (2), the suitable polar solvent comprises a combination of methanol and ethyl acetate; and

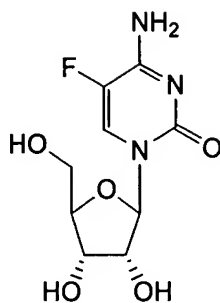
in step (3) the suitable base is sodium methoxide.

18. (Currently Amended) The process according to Claim 17, for the preparation of a compound of Formula (IV):



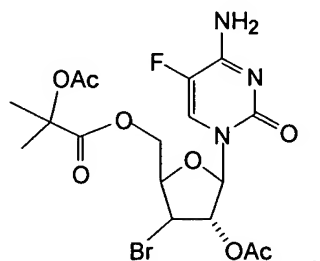
comprising:

(1) contacting a compound of Formula (I):

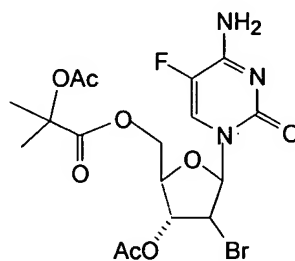


(I)

with 2-acetoxy-2-methyl-propionyl bromide in a suitable polar aprotic solvent comprising a combination of acetonitrile and ethyl acetate, wherein the ratio of acetonitrile to ethyl acetate is 1:4; to form a mixture of compounds of Formula (II-a) and (II*-a):

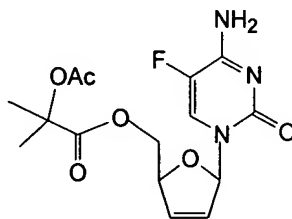


(II-a)



(II*-a)

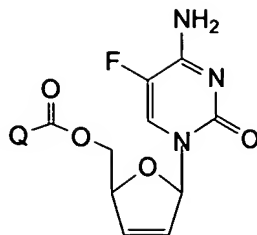
(2) contacting the mixture of compounds of Formula (II-a) and (II*-a) with Zn-Cu couple in a suitable polar solvent comprising a combination of methanol and ethyl acetate, wherein the ratio of methanol to ethyl acetate is in the range of 1:2 to 1:4; ~~optionally in the presence of acetic acid,~~ to form a compound of Formula (III-a):



(III-a); and

(3) contacting the compound of Formula (III-a) with sodium methoxide to form the compound of Formula (IV).

19. (Currently Amended) A process for the preparation of a compound of Formula (III):



(III)

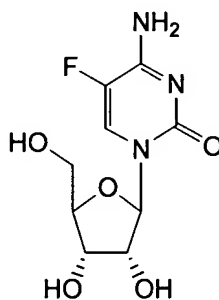
wherein:

Q is 2-(R¹CH₂CO₂)phenyl-, R¹CH₂-, or R¹CH₂C(=O)OC(R²)₂-;

R¹ is H or C₁-C₆ alkyl;

R², at each occurrence, is independently selected from methyl, ethyl, and propyl;
comprising:

(1) contacting a compound of Formula (I):



(I)

with an acyl halide of Formula Q-C(=O)X, wherein:

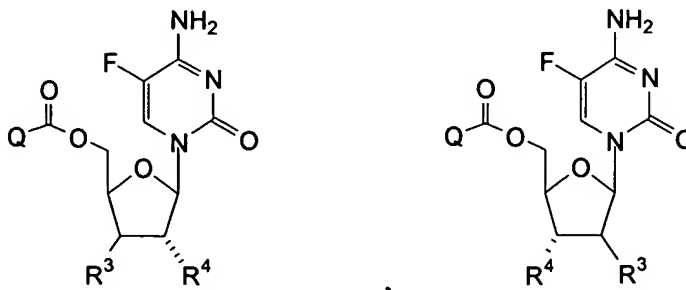
Q is 2-(R¹CH₂CO₂)phenyl-, R¹CH₂-, or R¹CH₂C(=O)OC(R²)₂-;

X is Cl, Br, or I;

R¹ is H or C₁-C₆ alkyl;

R², at each occurrence, is independently selected from methyl, ethyl, and propyl;

in a suitable polar aprotic solvent to form a compound of Formula (II), a compound of Formula (II*), or a mixture of compounds of Formula (II) and (II*):



(II)

(II*)

wherein R^3 is X; and R^4 is $R^1CH_2C(=O)O^-$; and

(2) contacting the compound of Formula (II), the compound of Formula (II*), or the mixture of compounds of Formula (II) and (II*); with a suitable reducing agent in a suitable polar solvent, ~~optionally in the presence~~ in the absence of a suitable an acid catalyst, to form a compound of Formula (III).

20. (Currently Amended) The process of Claim 19 for the preparation of a compound of Formula (III), wherein:

in step (1) the acyl halide of Formula $Q-C(=O)X$ comprises:

2-acetoxy-2-methyl-propionyl bromide, 2-(acetoxy)-2-methyl-butanoyl bromide, 2-(acetoxy)-2-ethyl-butanoyl bromide, or 2-(acetoxy)-2-methyl-pentanoyl bromide;

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;

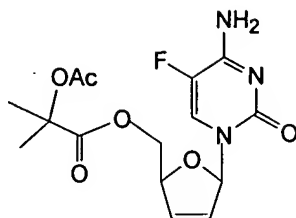
in step (2), the suitable reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;

~~in step (2), the suitable acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H_2SO_4 ; and~~

in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether.

21. (Currently Amended) The process according to Claim 19, for the preparation of a

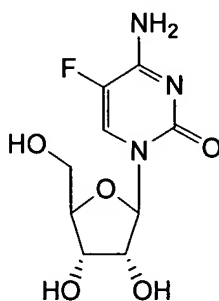
compound of Formula (III-a):



(III-a)

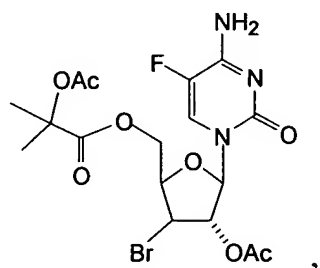
comprising:

(1) contacting a compound of Formula (I):

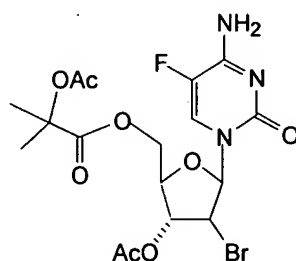


(I)

with 2-acetoxy-2-methyl-propionyl bromide in a suitable polar aprotic solvent to form a compound of Formula (II-a), a compound of Formula (II*-a), or a mixture of compounds of Formula (II-a) and (II*-a):



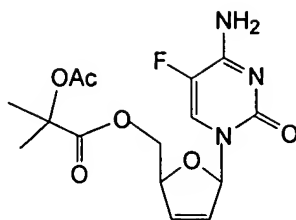
(II-a)



(II*-a)

(2) contacting the compound of Formula (II-a), the compound of Formula (II*-a), or the mixture of compounds of Formula (II-a) and (II*-a); with a suitable reducing agent in a suitable polar solvent, optionally in the presence in the absence of a suitable an acid catalyst, to form a compound of Formula (III-a).

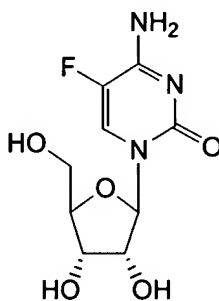
22. (Currently Amended) The process of Claim 21 for the preparation of a compound of Formula (III-a), wherein:
- in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;
- in step (2), the suitable reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;
- ~~in step (2), the suitable acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄; and~~
- in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether.
23. (Currently Amended) The process of Claim 22 for the preparation of a compound of Formula (III-a), wherein:
- in step (1), the suitable polar aprotic solvent comprises a combination of acetonitrile and ethyl acetate;
- in step (2), the suitable reducing agent is Zn-Cu couple;
- ~~in step (2), the suitable acid catalyst, when present, is acetic acid; and~~
- in step (2), the suitable polar solvent comprises a combination of methanol and ethyl acetate.
24. (Currently Amended) The process according to Claim 23, for the preparation of a compound of Formula (III-a):



(III-a)

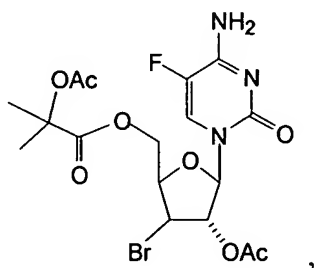
comprising:

(1) contacting a compound of Formula (I):

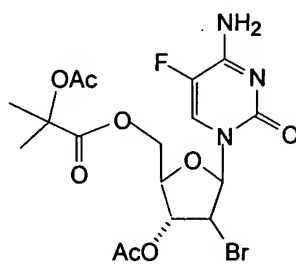


(I)

with 2-acetoxy-2-methyl-propionyl bromide in a suitable polar aprotic solvent comprising a combination of acetonitrile and ethyl acetate, wherein the ratio of acetonitrile to ethyl acetate is 1:4; to form a compound of Formula (II-a), a compound of Formula (II*-a), or a mixture of compounds of Formula (II-a) and (II*-a):



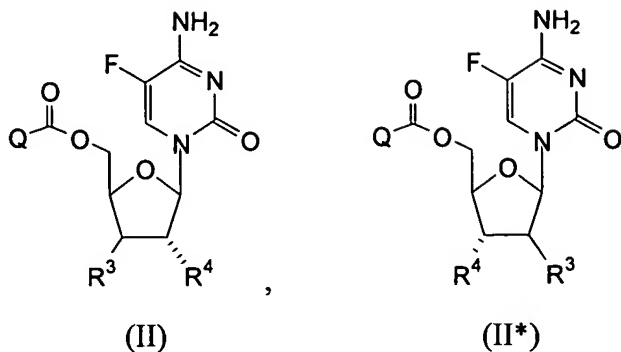
(II-a)



(II*-a)

(2) contacting the compound of Formula (II-a), the compound of Formula (II*-a), or the mixture of compounds of Formula (II-a) and (II*-a); with Zn-Cu couple in a suitable polar solvent comprising a combination of methanol and ethyl acetate, wherein the ratio of methanol to ethyl acetate is in the range of 1:2 to 1:4; ~~optionally in the presence of acetic acid~~, to form a compound of Formula (III-a).

25. (Currently Amended) A compound of Formula (II) or (II*):



or a pharmaceutically acceptable salt thereof, wherein:

in Formula II, Q is R^1CH_2- or $R^1CH_2C(=O)OC(R^2)_2-$;

R^1 is H or C_1 - C_6 alkyl, provided that when Q is R^1CH_2- , R^1 is not H;

R^2 is independently selected from methyl, ethyl, and propyl;

R^3 is Cl, Br, or I; and

R^4 is $R^1CH_2C(=O)O-$; and wherein:

in Formula II*,

Q is $R^1CH_2C(=O)OC(R^2)_2-$;

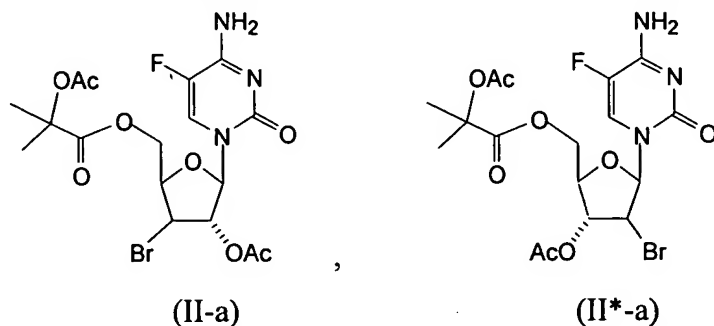
R^1 is H or C_1 - C_6 alkyl;

R^2 is independently selected from methyl, ethyl, and propyl;

R^3 is Cl, Br, or I; and

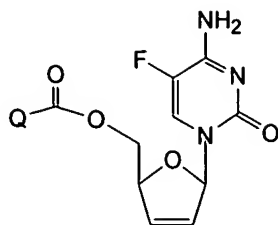
R^4 is $R^1CH_2C(=O)O-$.

26. (Currently Amended) A compound of ~~Claim 25~~ of Formula (II-a) or (II*-a):



or a pharmaceutically acceptable salt thereof.

27. (Currently Amended) A compound of Formula (III):



(III)

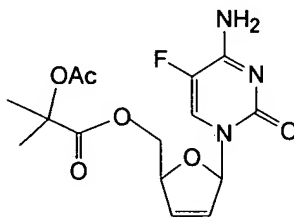
or a pharmaceutically acceptable salt thereof, wherein:

Q is R^1CH_2 or $R^1CH_2C(=O)OC(R^2)_2$;

R^1 is H or C_1 - C_6 alkyl; and

R^2 is independently selected from methyl, ethyl, and propyl.

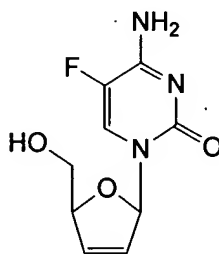
28. (Currently Amended) A compound of ~~Claim 27~~ of Formula (III-a):



(III-a)

or a pharmaceutically acceptable salt thereof.

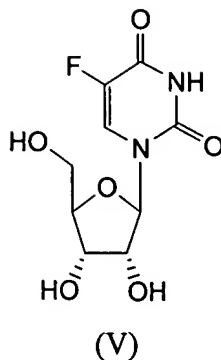
29. (Currently Amended) A process for the preparation of a compound of Formula (IV):



(IV)

comprising:

- (1) contacting a compound of Formula (IV):



with an acyl halide of Formula Q-C(=O)X, wherein:

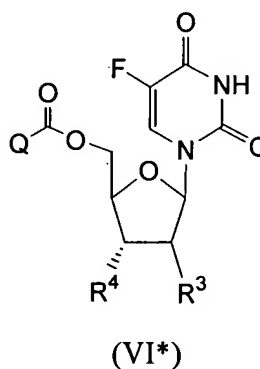
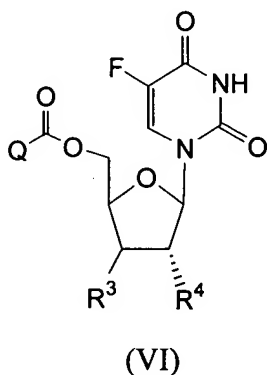
Q is 2-(R¹CH₂CO₂)phenyl-, R¹CH₂-, or R¹CH₂C(=O)OC(R²)₂-;

X is Cl, Br, ~~or IV~~ or I;

R¹ is H or C₁-C₆ alkyl;

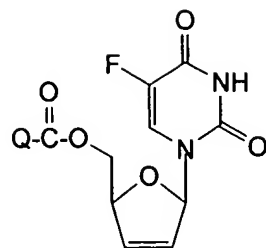
R², at each occurrence, is independently selected from methyl, ethyl, and propyl;

in a suitable polar aprotic solvent to form a compound of Formula (VI), a compound of Formula (VI*), or a mixture of compounds of Formula (VI) and (VI*):



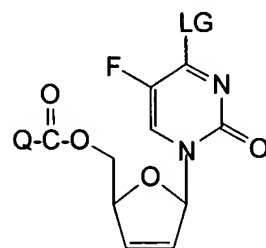
wherein R³ is X; and R⁴ is R¹CH₂C(=O)O-;

(2) contacting the compound of Formula (VI), the compound of Formula (VI*), or the mixture of compounds of Formula (VI) and (VI*); with a reducing agent in a suitable polar solvent, ~~optionally in the presence in the absence~~ of a suitable an acid catalyst, to form a compound of Formula (VII):



(VII);

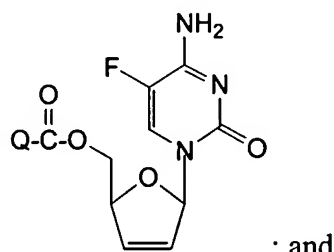
(3a) contacting the compound of Formula (VII) with an activating agent in the presence of an amine base, to form a compound of Formula (VIII):



(VIII)

wherein LG is a leaving group derived from the activating agent;

(3b) contacting the compound of Formula (VIII) with an aminating agent to form a compound of Formula (III),



; and

(III)

(4) contacting the compound of Formula (III) with a suitable base to form the compound of Formula (IV).

30. (Currently Amended) The process of Claim 29 for the preparation of a compound of Formula (IV), wherein:

in step (1) the acyl halide of Formula $Q-C(=O)X$ comprises:

- 2-acetoxy-2-methyl-propionyl bromide,
- 2-(acetoxy)-2-methyl-butanoyl bromide,

2-(acetoxy)-2-ethyl-butanoyl bromide, or

2-(acetoxy)-2-methyl-pentanoyl bromide;

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents, and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;

in step (2), the reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;

~~in step (2), the acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~

in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether;

in step (3a) the activating agent is selected from the group consisting of: methanesulfonyl chloride, trifluoromethyl sulfonyl chloride, ethanesulfonyl chloride, benzenesulfonyl chloride, p-toluene-sulfonyl chloride, triazole/phosphorus oxychloride and triazole/diphenyl chloro-phosphate;

in step (3a) the amine base is selected from the group consisting of: triethylamine, tributylamine,

N-methylmorpholine, N,N-diisopropyl-ethylamine,

N,N-dimethylcyclohexylamine,

N,N-diethylcyclohexylamine,

N,N-dimethyloctylamine, tetramethylethylenediamine,

pyridine, N,N-dimethyl-aminopyridine,

1,4-diazabicyclo[2.2.2]octane,

1,8-diazabicyclo[5.4.0]undec-7-ene, and

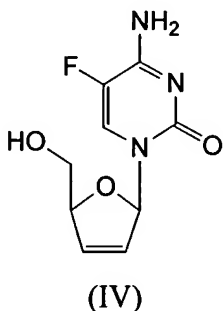
1,5-diazabicyclo[4.3.0]non-5-ene;

in step (3a) the leaving group LG is selected from the group consisting of
methanesulfonyloxy, trifluoromethyl-sulfonyloxy, ethanesulfonyloxy,
benzenesulfonyloxy, toluenesulfonyloxy, and triazolyl;

in step (3b) the aminating agent is selected
from the group consisting of: NH_3 , ammonium hydroxide, and ammonium
carbonate; and

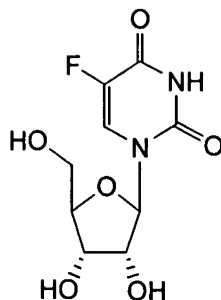
in step (4) the suitable base is selected from the group consisting of: sodium hydroxide,
lithium hydroxide, potassium carbonate, sodium carbonate, sodium methoxide,
sodium ethoxide, $\text{C}_3\text{-C}_6$ alkyl primary amine, ammonium hydroxide, and
ammonium $\text{C}_1\text{-C}_6$ alkoxide.

31. (Currently Amended) The process according to Claim 29, for the preparation of a
compound of Formula (IV):



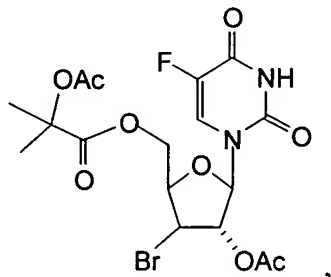
comprising:

(1) contacting a compound of Formula (V):

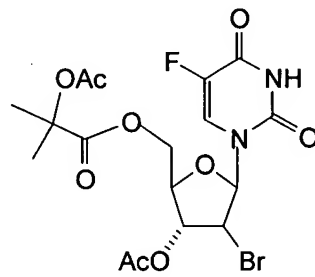


(V)

with 2-acetoxy-2-methyl-propionyl bromide in a suitable polar aprotic solvent to form a compound of Formula (VI-a), a compound of Formula (VI*-a), or a mixture of compounds of Formula (VI-a) and (VI*-a):

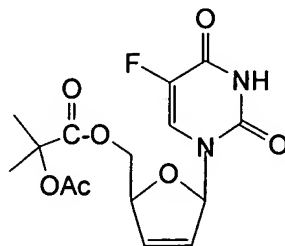


(VI-a)



(VI*-a)

(2) contacting the compound of Formula (VI-a), the compound of Formula (VI*-a), or the mixture of compounds of Formula (VI-a) and (VI*-a); with a reducing agent in a suitable polar solvent, ~~optionally in the presence~~ in the absence of a suitable an acid catalyst, to form a compound of Formula (VII-a):

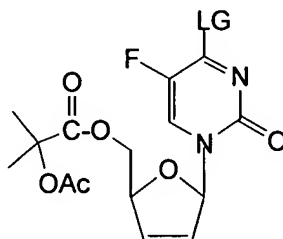


(VII-a);

(3a) contacting the compound of Formula (VII-a) with an activating agent selected from the group consisting of:

- i) an aryl sulfonyl halide,

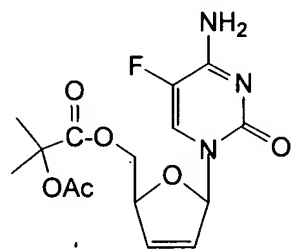
- ii) an alkyl sulfonyl halide, and
 - iii) 1,2,4-triazole in the presence of a phosphorus chloride;
- in the presence of an amine base, to form a compound of Formula (VIII-a);



(VIII-a)

wherein LG is a leaving group derived from the activating agent;

- (3b) contacting the compound of Formula (VIII-a) with an aminating agent to form a compound of Formula (III-a),



(III-a)

and

- (4) contacting the compound of Formula (III-a) with a suitable base to form the compound of Formula (IV).

32. (Currently Amended) The process of Claim 31 for the preparation of a compound of Formula (IV), wherein:

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;

in step (2), the reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;

~~in step (2), the acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~

in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether;

in step (3a) the activating agent is selected from the group consisting of:
methanesulfonyl chloride, trifluoromethyl sulfonyl chloride, ethanesulfonyl chloride, benzenesulfonyl chloride,
p-toluene-sulfonyl chloride, triazole/phosphorus oxychloride and
triazole/diphenyl chloro-phosphate;

in step (3a) the amine base is selected from the group consisting of: triethylamine,
tributylamine,

N-methylmorpholine, N,N-diisopropyl-ethylamine,

tetramethylethylenediamine, pyridine,

N,N-dimethyl-aminopyridine,

1,4-diazabicyclo[2.2.2]octane, and

1,8-diazabicyclo[5.4.0]undec-7-ene;

in step (3a) the leaving group LG is selected from the group consisting of
methanesulfonyloxy, trifluoromethyl-sulfonyloxy, ethanesulfonyloxy,
benzenesulfonyloxy, toluenesulfonyloxy, and triazolyl;

in step (3b) the aminating agent is selected

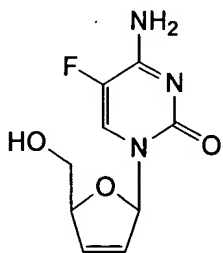
from the group: NH₃, ammonium hydroxide, and ammonium carbonate; and

in step (4) the suitable base is selected from the group consisting of: sodium hydroxide,
lithium hydroxide, potassium carbonate, sodium carbonate, sodium methoxide,
sodium ethoxide, C₃-C₆ alkyl primary amine, ammonium hydroxide, and

ammonium C₁-C₆ alkoxide.

33. (Currently Amended) The process of Claim 32 for the preparation of a compound of Formula (IV), wherein:
- in step (1), the suitable polar aprotic solvent comprises one solvent which is acetonitrile;
 - in step (2), the reducing agent is Zn-Cu couple;
 - ~~in step (2), the acid catalyst, when present, is acetic acid;~~
 - in step (2), the suitable polar solvent comprises a combination of methanol and ethyl acetate;
 - in step (3a) the activating agent is triazole/phosphorus oxychloride;
 - in step (3a) the amine base is triethylamine;
 - in step (3a) the leaving group LG is triazolyl;
 - in step (3b), the aminating agent is NH₃; and
 - in step (4) the suitable base is sodium methoxide.

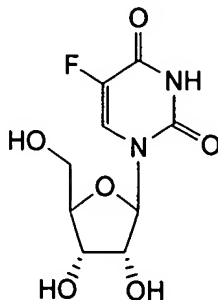
34. (Currently Amended) The process according to Claim 33, for the preparation of a compound of Formula (IV):



(IV)

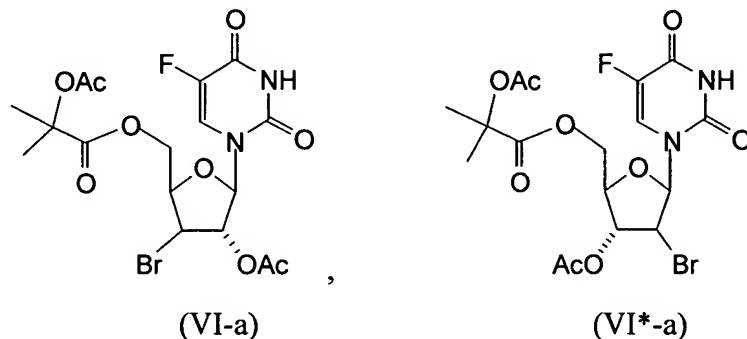
comprising:

- (1) contacting a compound of Formula (V):

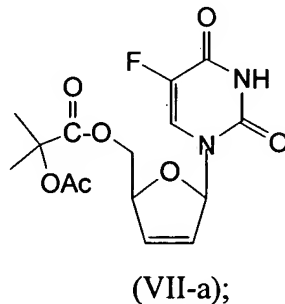


(V)

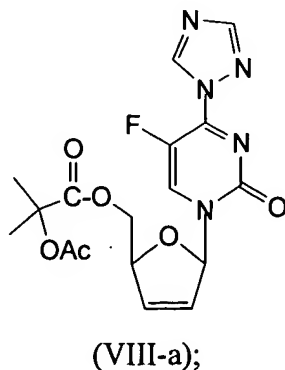
with 2-acetoxy-2-methyl-propionyl bromide in acetonitrile to form a compound of Formula (VI-a), a compound of Formula (VI*-a), or a mixture of compounds of Formula (VI-a) and (VI*-a):



(2) contacting the compound of Formula (VI-a), the compound of Formula (VI*-a), or the mixture of compounds of Formula (VI-a) and (VI*-a); with Zn-Cu couple in a suitable polar solvent comprising a combination of methanol and ethyl acetate, wherein the ratio of methanol to ethyl acetate is in the range of 1:2 to 1:4; ~~optionally in the presence of acetic acid~~, to form a compound of Formula (VII-a):



(3a) contacting the compound of Formula (VII-a) with 1,2,4-triazole/phosphorus oxychloride, in the presence of triethylamine, to form a compound of Formula (VIII-a):

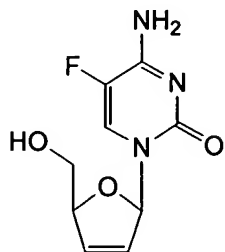


(3b) contacting the compound of Formula (VIII-a) with NH₃, to form a compound of

Formula (III-a), and

(4) contacting the compound of Formula (III-a) with sodium methoxide to form the compound of Formula (IV).

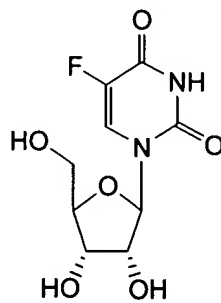
35. (Currently Amended) The process of Claim 29 for the preparation of a compound of Formula (IV):



(IV)

comprising:

- (1) contacting a compound of Formula (V):



(V)

with an acyl halide of Formula Q-C(=O)X, wherein:

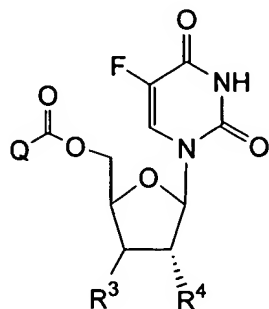
Q is 2-(R¹CH₂CO₂)phenyl-, R¹CH₂-, or R¹CH₂C(=O)OC(R²)₂-;

X is Cl, Br, ~~or IV~~ or I;

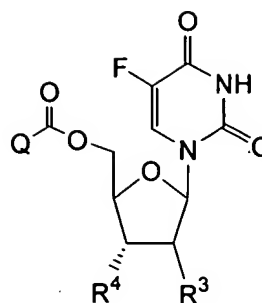
R¹ is H or C₁-C₆ alkyl;

R², at each occurrence, is independently selected from methyl, ethyl, and propyl;

in a suitable polar aprotic solvent to form a mixture of compounds of Formula (VI) and (VI*):



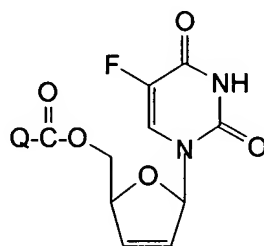
(VI)



(VI*)

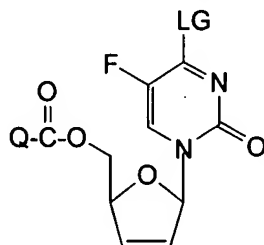
wherein R^3 is X; and R^4 is $R^1CH_2C(=O)O-$;

(2) contacting the mixture of compounds of Formula (VI) and (VI*); with a reducing agent in a suitable polar solvent, optionally in the presence in the absence of a suitable an acid catalyst, to form a compound of Formula (VII):



(VII);

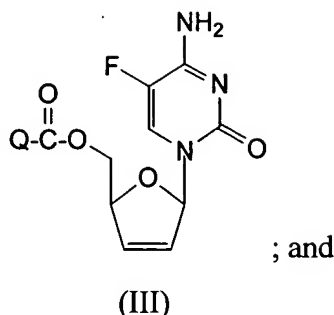
(3a) contacting the compound of Formula (VII) with an activating agent in the presence of an amine base, to form a compound of Formula (VIII):



(VIII)

wherein LG is a leaving group derived from the activating agent;

(3b) contacting the compound of Formula (VIII) with an aminating agent to form a compound of Formula (III),



(4) contacting the compound of Formula (III) with a suitable base to form the compound of Formula (IV).

36. (Currently Amended) The process of Claim 35 for the preparation of a compound of Formula (IV), wherein:

in step (1) the acyl halide of Formula $Q-C(=O)X$ comprises:

2-acetoxy-2-methyl-propionyl bromide,
2-(acetoxy)-2-methyl-butanoyl bromide,
2-(acetoxy)-2-ethyl-butanoyl bromide, or
2-(acetoxy)-2-methyl-pentanoyl bromide;

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents, and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;

in step (2), the reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;

~~in step (2), the acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~

in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether;

in step (3a) the activating agent is selected from the group consisting of:

methanesulfonyl chloride, trifluoromethyl sulfonyl chloride, ethanesulfonyl chloride, benzenesulfonyl chloride,
p-toluene-sulfonyl chloride, triazole/phosphorus oxychloride and triazole/diphenyl chloro-phosphate;

in step (3a) the amine base is selected from the group consisting of: triethylamine, tributylamine,

N-methylmorpholine, N,N-diisopropyl-ethylamine,

N,N-dimethylcyclohexylamine,

N,N-diethylcyclohexylamine,

N,N-dimethyloctylamine, tetramethylethylenediamine,

pyridine, N,N-dimethyl-aminopyridine,

1,4-diazabicyclo[2.2.2]octane,

1,8-diazabicyclo[5.4.0]undec-7-ene, and

1,5-diazabicyclo[4.3.0]non-5-ene;

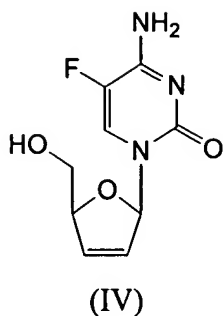
in step (3a) the leaving group LG is selected from the group consisting of methanesulfonyloxy, trifluoromethyl-sulfonyloxy, ethanesulfonyloxy, benzenesulfonyloxy, toluenesulfonyloxy, and triazolyl;

in step (3b) the aminating agent is selected from the group consisting of: NH₃, ammonium hydroxide, and ammonium carbonate; and

in step (4) the suitable base is selected from the group consisting of: sodium hydroxide, lithium hydroxide, potassium carbonate, sodium carbonate, sodium methoxide, sodium ethoxide, C₃-C₆ alkyl primary amine, ammonium hydroxide, and ammonium C₁-C₆ alkoxide.

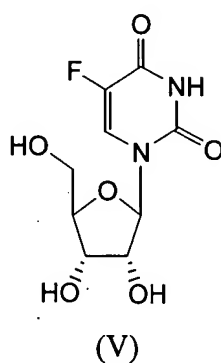
37. (Currently Amended) The process according to Claim 35, for the preparation of a

compound of Formula (IV):

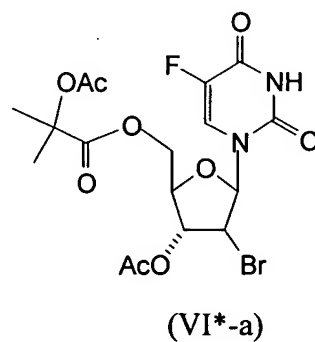
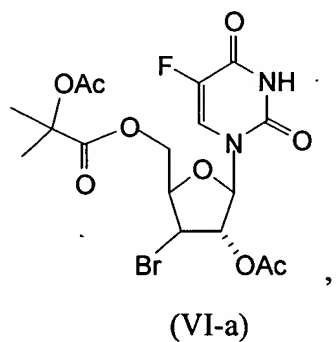


comprising:

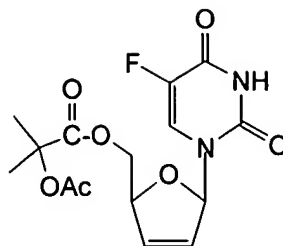
(1) contacting a compound of Formula (V):



with 2-acetoxy-2-methyl-propionyl bromide in a suitable polar aprotic solvent to form a mixture of compounds of Formula (VI-a) and (VI*-a):



(2) contacting the mixture of compounds of Formula (VI-a) and (VI*-a); with a reducing agent in a suitable polar solvent, ~~optionally in the presence~~ in the absence of a suitable an acid catalyst, to form a compound of Formula (VII-a):

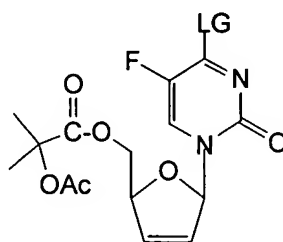


(VII-a);

(3a) contacting the compound of Formula (VII-a) with a
activating agent selected from the group consisting of:

- i) an aryl sulfonyl halide,
- ii) an alkyl sulfonyl halide, and
- iii) 1,2,4-triazole in the presence of a phosphorus chloride;

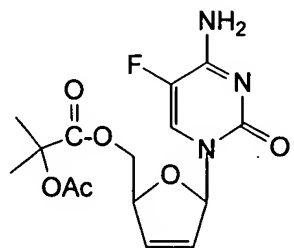
in the presence of an amine base, to form a compound of Formula (VIII-a);



(VIII-a)

wherein LG is a leaving group derived from the activating agent;

(3b) contacting the compound of Formula (VIII-a) with an aminating agent to form a
compound of Formula (III-a),



(III-a)

and

(4) contacting the compound of Formula (III-a) with a suitable base to form the
compound of Formula (IV).

38. (Currently Amended) The process of Claim 37 for the preparation of a compound of Formula (IV), wherein:

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;

in step (2), the reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;

~~in step (2), the acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~

in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether;

in step (3a) the activating agent is selected from the group consisting of: methanesulfonyl chloride, trifluoromethyl sulfonyl chloride, ethanesulfonyl chloride, benzenesulfonyl chloride, p-toluene-sulfonyl chloride, triazole/phosphorus oxychloride and triazole/diphenyl chloro-phosphate;

in step (3a) the amine base is selected from the group consisting of: triethylamine, tributylamine,

N-methylmorpholine, N,N-diisopropyl-ethylamine,

tetramethylethylenediamine, pyridine,

N,N-dimethyl-aminopyridine,

1,4-diazabicyclo[2.2.2]octane, and

1,8-diazabicyclo[5.4.0]undec-7-ene;

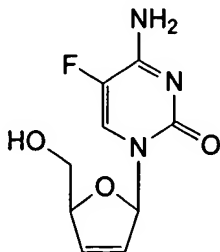
in step (3a) the leaving group LG is selected from the group consisting of
methanesulfonyloxy, trifluoromethyl-sulfonyloxy, ethanesulfonyloxy,
benzenesulfonyloxy, toluenesulfonyloxy, and triazolyl;
in step (3b) the aminating agent is selected from the group: NH_3 , ammonium hydroxide,
and ammonium carbonate; and
in step (4) the suitable base is selected from the group consisting of: sodium hydroxide,
lithium hydroxide, potassium carbonate, sodium carbonate, sodium methoxide,
sodium ethoxide, $\text{C}_3\text{-C}_6$ alkyl primary amine, ammonium hydroxide, and
ammonium $\text{C}_1\text{-C}_6$ alkoxide.

39. (Currently Amended) The process of Claim 38 for the preparation of a compound of
Formula (IV), wherein:

in step (1), the suitable polar aprotic solvent comprises one solvent which is acetonitrile;
in step (2), the reducing agent is Zn-Cu couple;
~~in step (2), the acid catalyst, when present, is acetic acid;~~
in step (2), the suitable polar solvent comprises a combination of methanol and ethyl
acetate;
in step (3a) the activating agent is triazole/phosphorus oxychloride;
in step (3a) the amine base is triethylamine;

in step (3a) the leaving group LG is triazolyl;
in step (3b), the aminating agent is NH_3 ; and
in step (4) the suitable base is sodium methoxide.

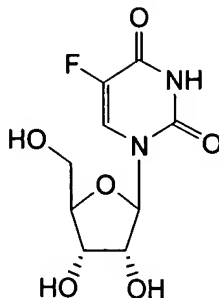
40. (Currently Amended) The process according to Claim 39, for the preparation of a
compound of Formula (IV):



(IV)

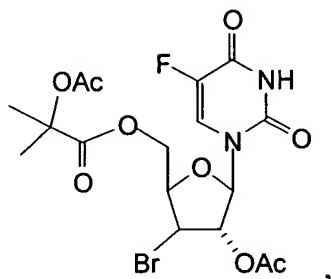
comprising:

(1) contacting a compound of Formula (V):

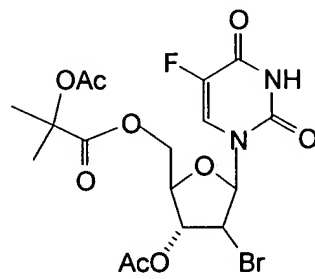


(V)

with 2-acetoxy-2-methyl-propionyl bromide in acetonitrile to form a mixture of compounds of Formula (VI-a) and (VI*-a):

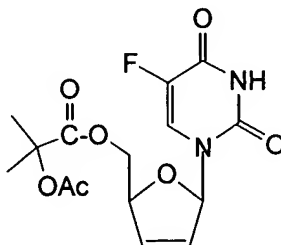


(VI-a)



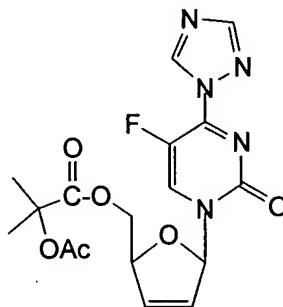
(VI*-a)

(2) contacting the mixture of compounds of Formula (VI-a) and (VI*-a); with Zn-Cu couple in a suitable polar solvent comprising a combination of methanol and ethyl acetate, wherein the ratio of methanol to ethyl acetate is in the range of 1:2 to 1:4; optionally in the presence of acetic acid, to form a compound of Formula (VII-a):



(VII-a);

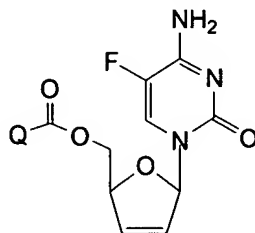
(3a) contacting the compound of Formula (VII-a) with 1,2,4-triazole/phosphorus oxychloride, in the presence of triethylamine, to form a compound of Formula (VIII-a):



(VIII-a);

- (3b) contacting the compound of Formula (VIII-a) with NH_3 , to form a compound of Formula (III-a), and
(4) contacting the compound of Formula (III-a) with sodium methoxide to form the compound of Formula (IV).

41. (Currently Amended) A process for the preparation of a compound of Formula (III):



(III)

wherein:

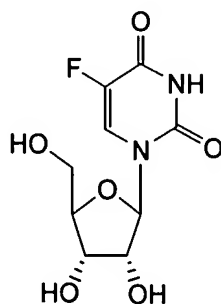
Q is 2-($\text{R}^1\text{CH}_2\text{CO}_2$)phenyl-, R^1CH_2 -, or $\text{R}^1\text{CH}_2\text{C}(=\text{O})\text{OC}(\text{R}^2)_2$;

R^1 is H or C_1 - C_6 alkyl;

R^2 , at each occurrence, is independently selected from methyl, ethyl, and propyl;

comprising:

- (1) contacting a compound of Formula (V):



(V)

with an acyl halide of Formula $Q-C(=O)X$, wherein:

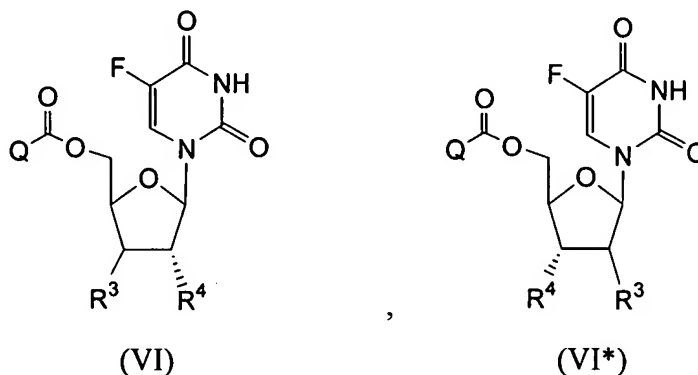
Q is 2-($R^1CH_2CO_2$)phenyl-, R^1CH_2 -, or $R^1CH_2C(=O)OC(R^2)_2$;

X is Cl, Br, ~~or IV~~ or I;

R^1 is H or C_1 - C_6 alkyl;

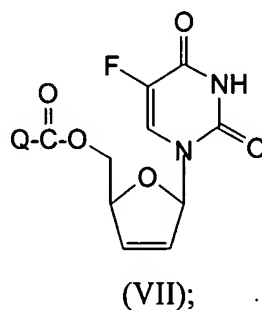
R^2 , at each occurrence, is independently selected from methyl, ethyl, and propyl;

in a suitable polar aprotic solvent to form a compound of Formula (VI), a compound of Formula (VI*), or a mixture of compounds of Formula (VI) and (VI*):

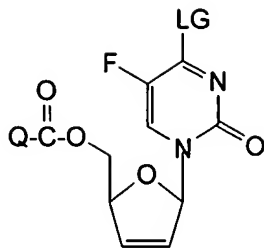


wherein R^3 is X; and R^4 is $R^1CH_2C(=O)O$ -;

(2) contacting the compound of Formula (VI), the compound of Formula (VI*), or the mixture of compounds of Formula (VI) and (VI*); with a reducing agent in a suitable polar solvent, ~~optionally in the presence~~ in the absence of a ~~suitable~~ an acid catalyst, to form a compound of Formula (VII):



(3a) contacting the compound of Formula (VII) with an activating agent in the presence of an amine base, to form a compound of Formula (VIII):



(VIII)

wherein LG is a leaving group derived from the activating agent;

(3b) contacting the compound of Formula (VIII) with an aminating agent to form a compound of Formula (III).

42. (Currently Amended) The process of Claim 41 for the preparation of a compound of Formula (III), wherein:

in step (1) the acyl halide of Formula $Q-C(=O)X$ comprises:

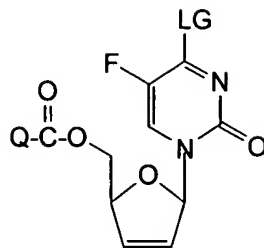
2-acetoxy-2-methyl-propionyl bromide,
2-(acetoxy)-2-methyl-butanoyl bromide,
2-(acetoxy)-2-ethyl-butanoyl bromide, or
2-(acetoxy)-2-methyl-pentanoyl bromide;

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;

in step (2), the reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;

~~in step (2), the acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~

in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether;



(VIII)

wherein LG is a leaving group derived from the activating agent;

(3b) contacting the compound of Formula (VIII) with an aminating agent to form a compound of Formula (III).

42. (Currently Amended) The process of Claim 41 for the preparation of a compound of Formula (III), wherein:

in step (1) the acyl halide of Formula Q-C(=O)X comprises:

2-acetoxy-2-methyl-propionyl bromide,
2-(acetoxy)-2-methyl-butanoyl bromide,
2-(acetoxy)-2-ethyl-butanoyl bromide, or
2-(acetoxy)-2-methyl-pentanoyl bromide;

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a combination of two or more polar aprotic solvents; and is selected from the group consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether, dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide, dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;

in step (2), the reducing agent is selected from the group consisting of: Fe, Zn-Cu couple and Zn;

~~in step (2), the acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~

in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether;

in step (3a) the activating agent is selected from the group consisting of:
methanesulfonyl chloride, trifluoromethyl sulfonyl chloride, ethanesulfonyl chloride, benzenesulfonyl chloride,
p-toluene-sulfonyl chloride, triazole/phosphorus oxychloride and triazole/diphenyl chloro-phosphate;

in step (3a) the amine base is selected from the group consisting of: triethylamine, tributylamine,

N-methylmorpholine, N,N-diisopropyl-ethylamine,

N,N-dimethylcyclohexylamine,

N,N-diethylcyclohexylamine,

N,N-dimethyloctylamine, tetramethylethylenediamine,

pyridine, N,N-dimethyl-aminopyridine,

1,4-diazabicyclo[2.2.2]octane,

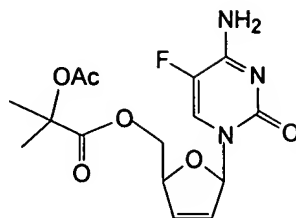
1,8-diazabicyclo[5.4.0]undec-7-ene, and

1,5-diazabicyclo[4.3.0]non-5-ene;

in step (3a) the leaving group LG is selected from the group consisting of
methanesulfonyloxy, trifluoromethyl-sulfonyloxy, ethanesulfonyloxy, benzenesulfonyloxy, toluenesulfonyloxy, and triazolyl;

in step (3b) the aminating agent is selected from the group: NH_3 , ammonium hydroxide, and ammonium carbonate.

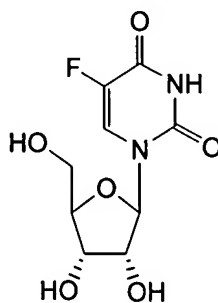
43. (Currently Amended) The process according to Claim 41, for the preparation of a compound of Formula (III-a):



(III-a)

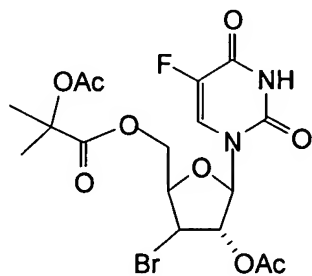
comprising:

(1) contacting a compound of Formula (V):

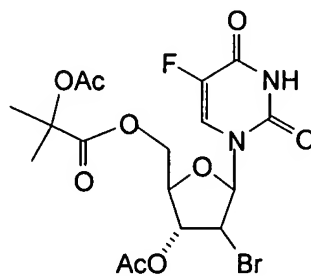


(V)

with 2-acetoxy-2-methyl-propionyl bromide in a suitable polar aprotic solvent to form a compound of Formula (VI-a), a compound of Formula (VI*-a), or a mixture of compounds of Formula (VI-a) and (VI*-a):

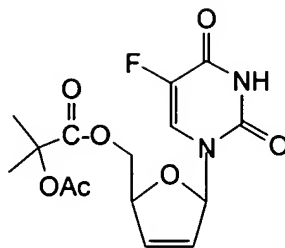


(VI-a)



(VI*-a)

(2) contacting the compound of Formula (VI-a), the compound of Formula (VI*-a), or the mixture of compounds of Formula (VI-a) and (VI*-a); with a reducing agent in a suitable polar solvent, ~~optionally in the presence~~ in the absence of a suitable an acid catalyst, to form a compound of Formula (VII-a);

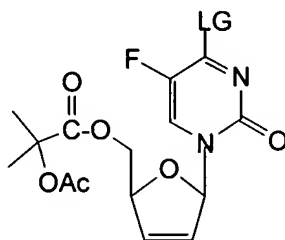


(VII-a);

(3a) contacting the compound of Formula (VII-a) with a
activating agent selected from the group consisting of:

- i) an aryl sulfonyl halide,
- ii) an alkyl sulfonyl halide, and
- iii) 1,2,4-triazole in the presence of a phosphorus chloride;

in the presence of an amine base, to form a compound of Formula (VIII-a):



(VIII-a)

wherein LG is a leaving group derived from the activating agent; and

(3b) contacting the compound of Formula (VIII-a) with an aminating agent to form a
compound of Formula (III-a).

44. (Currently Amended) The process of Claim 43 for the preparation of a compound of
Formula (III-a), wherein:

in step (1), the suitable polar aprotic solvent comprises one polar aprotic solvent or a
combination of two or more polar aprotic solvents; and is selected from the group
consisting of: methylene chloride, tetrahydrofuran, t-butyl methyl ether,
dimethoxy ethane, 2-methoxyethyl ether, dimethylformamide,
dimethylacetamide, acetonitrile, ethyl acetate, and isopropyl acetate;
in step (2), the reducing agent is selected from the group consisting of: Fe, Zn-Cu couple
and Zn;

~~in step (2), the acid catalyst, when present, is selected from the group consisting of: acetic acid, propanoic acid, butyric acid, benzoic acid, toluene sulfonic acid, HCl, HBr, HI, and H₂SO₄;~~

in step (2), the suitable polar solvent comprises one polar solvent or a combination of two or more polar solvents; and is selected from the group consisting of: methanol, ethanol, propanol, ethyl acetate, propyl acetate, butyl acetate, isopropyl acetate, acetonitrile, tetrahydrofuran, dimethoxy ethane, and 2-methoxyethyl ether; and

in step (3a) the activating agent is selected from the group consisting of:
methanesulfonyl chloride, trifluoromethyl sulfonyl chloride, ethanesulfonyl chloride, benzenesulfonyl chloride,
p-toluene-sulfonyl chloride, triazole/phosphorus oxychloride and triazole/diphenyl chloro-phosphate;

in step (3a) the amine base is selected from the group consisting of: triethylamine, tributylamine,

N-methylmorpholine, N,N-diisopropyl-ethylamine,

tetramethylethylenediamine, pyridine,

N,N-dimethyl-aminopyridine,

1,4-diazabicyclo[2.2.2]octane, and

1,8-diazabicyclo[5.4.0]undec-7-ene;

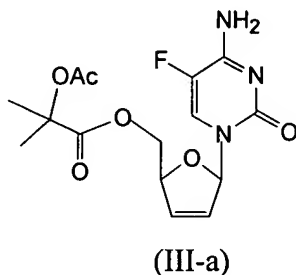
in step (3a) the leaving group LG is selected from the group consisting of
methanesulfonyloxy, trifluoromethyl-sulfonyloxy, ethanesulfonyloxy,
benzenesulfonyloxy, toluenesulfonyloxy, and triazolyl; and

in step (3b) the aminating agent is selected from the group: NH₃, ammonium hydroxide, and ammonium carbonate.

45. (Currently Amended) The process of Claim 44 for the preparation of a compound of Formula (III-a), wherein:

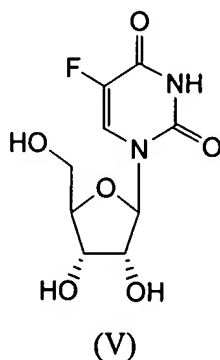
in step (1), the suitable polar aprotic solvent comprises one solvent which is acetonitrile;
in step (2), the reducing agent is Zn-Cu couple;
~~in step (2), the acid catalyst, when present, is acetic acid;~~
in step (2), the suitable polar solvent comprises a combination of methanol and ethyl acetate;
in step (3a) the activating agent is triazole/phosphorus oxychloride;
in step (3a) the amine base is triethylamine;
in step (3a) the leaving group LG is triazolyl; and
in step (3b), the aminating agent is NH_3 .

46. (Currently Amended) The process according to Claim 45, for the preparation of a compound of Formula (III-a):

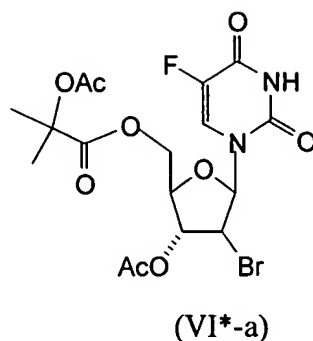
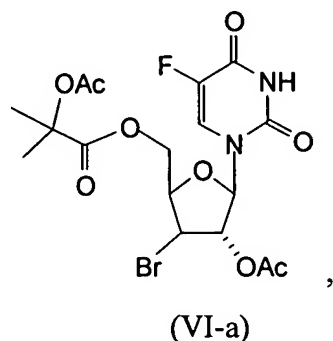


comprising:

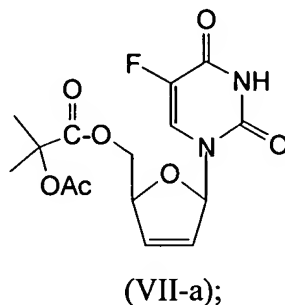
- (1) contacting a compound of Formula (V):



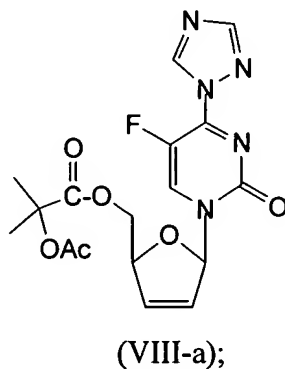
with 2-acetoxy-2-methyl-propionyl bromide in acetonitrile to form a compound of Formula (VI-a), a compound of Formula (VI* -a), or a mixture of compounds of Formula (VI-a) and (VI* -a):



(2) contacting the compound of Formula (VI-a), the compound of Formula (VI*-a), or the mixture of compounds of Formula (VI-a) and (VI*-a); with Zn-Cu couple in a suitable polar solvent comprising a combination of methanol and ethyl acetate, wherein the ratio of methanol to ethyl acetate is in the range of 1:2 to 1:4; ~~optionally in the presence of acetic acid,~~ to form a compound of Formula (VII-a):



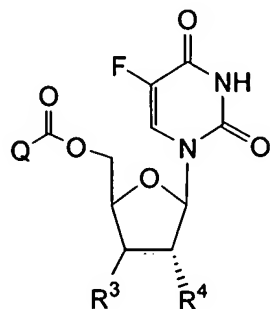
(3a) contacting the compound of Formula (VII-a) with 1,2,4-triazole/phosphorus oxychloride, in the presence of triethylamine, to form a compound of Formula (VIII-a):



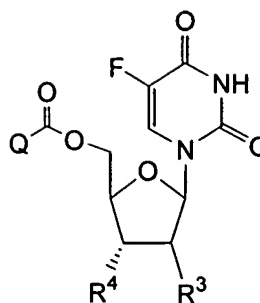
and

(3b) contacting the compound of Formula (VIII-a) with NH₃, to form a compound of Formula (III-a).

47. (Withdrawn) A compound of Formula (VI) or (VI*):



(VI)



(VI*)

or a pharmaceutically acceptable salt thereof, wherein:

Q is R^1CH_2- or $R^1CH_2C(=O)OC(R^2)_2-$;

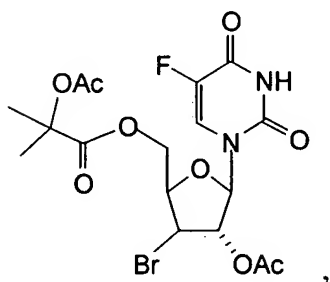
R^1 is H or C_1 - C_6 alkyl;

R^2 is independently selected from methyl, ethyl, and propyl;

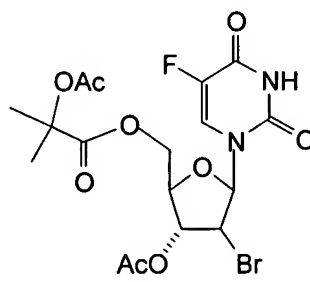
R^3 is Cl, Br, or IV; and

R^4 is $R^1CH_2C(=O)O-$.

48. (Withdrawn) A compound of Claim 47 of Formula (VI-a) or (VI*-a):



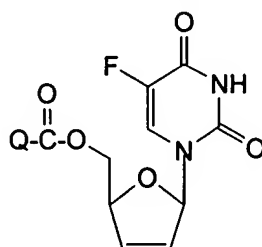
(VI-a)



(VI*-a)

or a pharmaceutically acceptable salt thereof.

49. (Withdrawn) A compound of Formula (VII):



(VII)

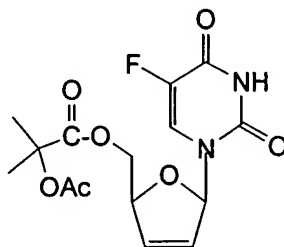
or a pharmaceutically acceptable salt thereof, wherein:

Q is R^1CH_2- or $R^1CH_2C(=O)OC(R^2)_2-$;

R^1 is H or C_1-C_6 alkyl; and

R^2 is independently selected from methyl, ethyl, and propyl.

50. (Withdrawn) A compound of Claim 49 of Formula (VII-a):

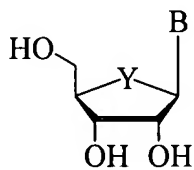


(VII-a)

or a pharmaceutically acceptable salt thereof.

51. (Withdrawn) A process for the preparation of a β -D- and β -L-2',3'-dideoxy-2',3'-didehydro-nucleoside comprising:

- a) activating a compound of structure (1)



(1)

wherein B is a pyrimidine or purine base; and

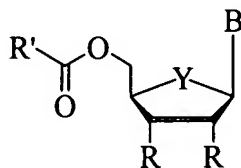
Y is O, S or CH_2 ;

with an acyl halide of the formula $X-C(=O)R^1$, $X-C(=O)C(R^1)_2OC(=O)R^1$ or $X-C(=O)phenylC(=O)OR^1$;

wherein X is a halogen (F, Cl, Br or I), and

each R^1 is independently hydrogen, lower alkyl, alkyl, aryl or phenyl;

to form a compound of structure (2)

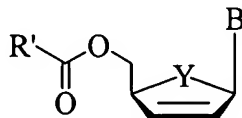


(2)

wherein R' is R¹, -C(R¹)₂OC(=O)R¹ or -phenylC(=O)OR¹; and

at least one R is halogen (F, Cl, Br or I), and at least one R is an acyl of the formula -OC(=O)R¹; and then

- b) reducing the compound of structure (2) with a reducing agent to form a 2',3'-dideoxy-2',3'-didehydro-nucleoside of structure (3)



(3)

- c) optionally deprotecting the nucleoside if necessary.

52. (Withdrawn) The process of Claim 51, wherein B is 5-fluorouracil or 5-fluorocytosine.
53. (Withdrawn) The process of Claim 51, wherein Y is O.
54. (Withdrawn) The process of Claim 51, wherein the β -D- and β -L-2',3'-dideoxy-2',3'-didehydro-nucleoside is D4FC.
55. (Withdrawn) The process of Claim 51, wherein the β -D- and β -L-2',3'-dideoxy-2',3'-didehydro-nucleoside is β -D-D4FC.
56. (Withdrawn) The process of Claim 51, wherein the β -D- and β -L-2',3'-dideoxy-2',3'-didehydro-nucleoside is β -D-D4FC.
57. (Withdrawn) The process of Claim 51, further comprising reducing the β -D or β -L-2',3'-dideoxy-2',3'-didehydro-nucleoside into a β -D or β -L-2'- or 3'-deoxyribo-nucleoside.
58. (Withdrawn) The process of Claim 51, further comprising converting the β -D or β -L-2',3'-dideoxy-2',3'-didehydro-nucleoside bearing a different nucleobase.

59. (Withdrawn) The process of Claim 58, wherein the β -D or β -L-2',3'-dideoxy-2',3'-didehydro-nucleoside is β -D or β -L-2',3'-dideoxy-2',3'-didehydro-5-fluorouridine which is converted to a β -D or β -L-2',3'-dideoxy-2',3'-didehydro-5-fluorocytidine.
60. The process of claims 1 or 29 wherein the compound of Formula (IV) is in the form of a β -D-enantiomer.
61. The process of claims 19 or 41 wherein the compound of Formula (III) is in the form of a β -D-enantiomer.
62. The compound of claim 25 wherein the compound of Formula (II) or (II*) is in the form of a β -D-enantiomer.
63. The compound of claim 26 wherein the compound of Formula (II-a) or (II*-a) is in the form of a β -D-enantiomer.
64. The compound of claim 27 wherein the compound of Formula (III) is in the form of a β -D-enantiomer.
65. The compound of claim 28 wherein the compound of Formula (III-a) is in the form of a β -D-enantiomer.